10/774866

# **Refine Search**

Your wildcard search against 10000 terms has yielded the results below.

# Your result set for the last L# is incomplete.

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

Search Results -

Terms	Documents		
L2 and (control\$ with clutch\$)	15		

US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

L3		[7]	Refine Search
	* Recall Text 👄	Clear	Interrupt

## **Search History**

DATE: Tuesday, May 30, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Name result set
DB=PGPB, QOP=OR	USPT, USOC, EPAB, JPAB, DWPI, TDBD; THES=ASSIGNEE; P.	LUR=YES;	
<u>L3</u>	L2 and (control\$ with clutch\$)	15	<u>L3</u>
<u>L2</u>	L1 and (duty adj cycle)	15	<u>L2</u>
<u>L1</u>	"clutch slip" and torque and (elaps\$ adj time)	96	<u>L1</u>

**END OF SEARCH HISTORY** 

# **Hit List**

First Hit

Your wildcard search against 10000 terms has yielded the results below.

## Your result set for the last L# is incomplete.

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

Clear Generate Collection Print Fwd Refs Bkwd Refs
Generate OACS

**Search Results** - Record(s) 1 through 10 of 15 returned.

☐ 1. Document ID: US 20050177295 A1

Using default format because multiple data bases are involved.

L3: Entry 1 of 15

File: PGPB

Aug 11, 2005

PGPUB-DOCUMENT-NUMBER: 20050177295

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050177295 A1

TITLE: Method and apparatus for controlling a transfer case clutch to improve

vehicle handling

PUBLICATION-DATE: August 11, 2005

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY Rodrigues, Ashok Farmington US MΙ Allen, Timothy Livonia MΙ US Thomas, Steven Bloomfield Hills MI US

US-CL-CURRENT: <u>701/67</u>; <u>701/68</u>

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawi De
······································		7	·····				· · · · · · · · · · · · · · · · · · ·		******			

☐ 2. Document ID: US 20040111203 A1

L3: Entry 2 of 15

File: PGPB

Jun 10, 2004

PGPUB-DOCUMENT-NUMBER: 20040111203

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040111203 A1

TITLE: Torque-converter slip control system

PUBLICATION-DATE: June 10, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY

Higashimata, Akira

Kanagawa

JΡ

Segawa, Satoshi

Kanagawa

JΡ

US-CL-CURRENT: 701/51; 701/87, 701/90

		7//	7 - 1 - 12	<u> </u>		<u> </u>						
Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMAC	Draw, De

## ☐ 3. Document ID: US 20040020700 A1

L3: Entry 3 of 15

File: PGPB

Feb 5, 2004

May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20040020700

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040020700 A1

TITLE: On demand vehicle drive system

PUBLICATION-DATE: February 5, 2004

### INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Watson, Will	Southfield	MI	US
Miller, Alan L.	Ithaca	NY	US
Sundquist, Drew A.	Canton	MI	US
Simpson, Roger T.	Ithaca	NY	US
Ducklow, Diane K.	Farmington	MI	US
Beckerman, Joseph W.	Livonia	MI	US
Showalter, Dan J.	Plymouth	MI	US

US-CL-CURRENT: <u>180/247</u>

Full	Title	Citation Fro	ont F	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw, De
<del></del>				······			,, <u>,</u> ,,					
	4.	Document I	ID: U	US 20	020052265	A1						

File: PGPB

PGPUB-DOCUMENT-NUMBER: 20020052265

PGPUB-FILING-TYPE: new

L3: Entry 4 of 15

DOCUMENT-IDENTIFIER: US 20020052265 A1

TITLE: Slip control system for torque converter

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

COUNTRY STATE CITY NAME

JΡ Segawa, Satoshi Kanagawa

Adachi, Kazutaka Yokohama JΡ Record List Display Page 3 of 5

US-CL-CURRENT: <u>477/62</u>; <u>477/65</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KWIC Draw. De

☐ 5. Document ID: US 20010042652 A1

L3: Entry 5 of 15

File: PGPB

Nov 22, 2001

PGPUB-DOCUMENT-NUMBER: 20010042652

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010042652 A1

TITLE: On demand vehicle drive system

PUBLICATION-DATE: November 22, 2001

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY Watson, Will Southfield MΙ US Miller, Alan L. Ithaca US NY Sundguist, Drew A. Canton US ΜI Simpson, Roger T. Ithaca NY US Ducklow, Diane K. Farmington MI US Beckerman, Joseph W. Livonia ΜI US Showalter, Dan J. Plymouth MΙ US

US-CL-CURRENT: 180/249; 180/244

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw, De
 											<del></del>	
	6. I	Ocume	nt ID:	US 69	28357 B2							
L3:	Entr	y 6 of	15			File:	USPT			Aug 9	, 20	05

US-PAT-NO: 6928357

DOCUMENT-IDENTIFIER: US 6928357 B2

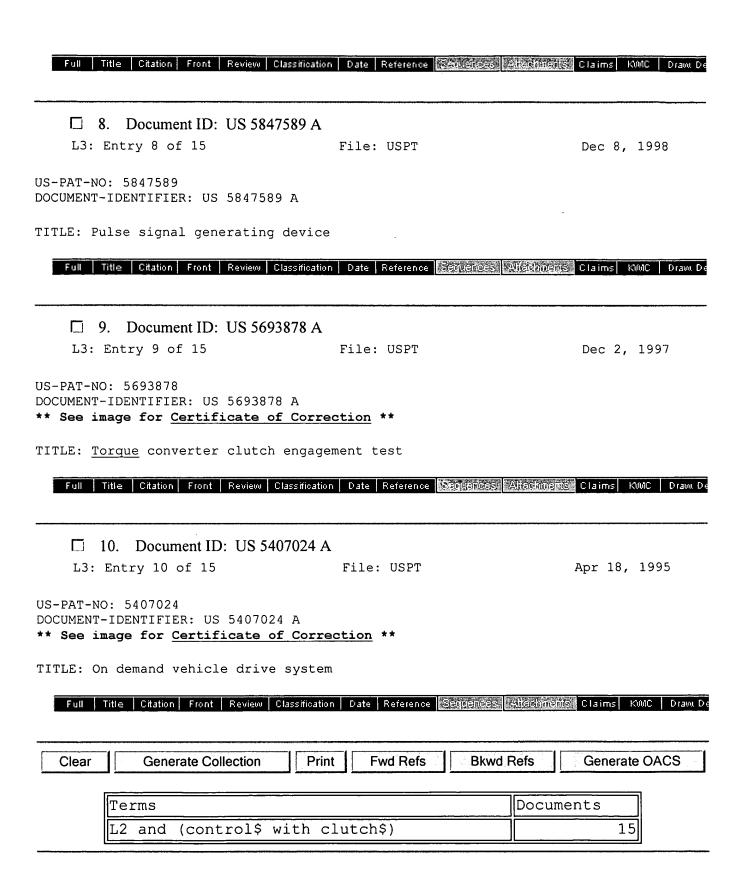
TITLE: <u>Torque</u>-converter slip control system

Full   Title   Citation   Front   Re-	view Classification Date Reference Scripences	<b>Attachments</b> Claims KMIC Draw De
☐ 7. Document ID: US	S 6652415 B2	
L3: Entry 7 of 15	File: USPT	Nov 25, 2003

US-PAT-NO: 6652415

DOCUMENT-IDENTIFIER: US 6652415 B2

TITLE: Slip control system for torque converter



**Change Format** Display Format: |First Hit

Previous Doc

Next Doc

Go to Doc#

Generate Collection

Print

L3: Entry 4 of 15

File: PGPB

May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020052265

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020052265 A1

TITLE: Slip control system for torque converter

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE

COUNTRY

Segawa, Satoshi

Kanagawa

JР

Adachi, Kazutaka

Yokohama

JΡ

ASSIGNEE-INFORMATION:

NAME

CITY STATE

COUNTRY

TYPE CODE

NISSAN MOTOR CO., LTD.,

03

APPL-NO: 09/983939 [PALM]
DATE FILED: October 26, 2001

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY

APPL-NO

DOC-ID

APPL-DATE

JΡ

2000-328474

2000JP-2000-328474

October 27, 2000

INT-CL-PUBLISHED: [07] F16 H 61/14

US-CL-PUBLISHED: 477/62; 477/65 US-CL-CURRENT: 477/62; 477/65

REPRESENTATIVE-FIGURES: 1

#### ABSTRACT:

A pre-compensator equipped slip <u>control</u> system for a lock-up <u>torque</u> converter employing a lock-up <u>clutch</u>, includes a slip-rotation <u>control</u> section that begins to calculate a compensated target slip rotation from a time when an actual slip rotation between input and output elements of the <u>torque</u> converter becomes less than a predetermined slip-rotation threshold value after shifting from a <u>torque</u>-converter action area to a slip-<u>control</u> area, so that the actual slip rotation is brought closer to the compensated target slip rotation. Also provided is a feedforward <u>control</u> section that determines a lock-up <u>clutch</u> engagement pressure by way of feedforward <u>control</u> during a period of time from a time when the <u>torque</u> converter is shifted from the <u>torque</u>-converter action area to the slip-<u>control</u> area to the time when the actual slip rotation becomes less than the predetermined slip-rotation threshold value.

# **Hit List**

First Hit

Your wildcard search against 10000 terms has yielded the results below.

## Your result set for the last L# is incomplete.

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

Clear **Generate Collection** Print Fwd Refs **Bkwd Refs Generate OACS** 

**Search Results -** Record(s) 11 through 15 of 15 returned.

☐ 11. Document ID: US 5323320 A

Using default format because multiple data bases are involved.

L3: Entry 11 of 15

Jun 21, 1994

US-PAT-NO: 5323320

DOCUMENT-IDENTIFIER: US 5323320 A

TITLE: Stability test for slip operation of torque converter clutch

DATE-ISSUED: June 21, 1994

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Hathaway; Richard R.

Plymouth

MI

Neigebauer; James J.

Ypsilanti

ΜI

US-CL-CURRENT: 701/67; 192/3.3, 192/3.58, 477/169

Full Title Citation Front Review Classification Date Reference Section S. Attachinguis Claims KMC Draw De

☐ 12. Document ID: US 5113343 A

L3: Entry 12 of 15

File: USPT

May 12, 1992

US-PAT-NO: 5113343

DOCUMENT-IDENTIFIER: US 5113343 A

TITLE: Sequenced control of double transition powered downshifting in an automatic transmission

☐ 13. Document ID: US 5046174 A

L3: Entry 13 of 15

File: USPT

Full Title Citation Front Review Classification Date Reference Reference Reference Classification Date Reference

Sep 3, 1991

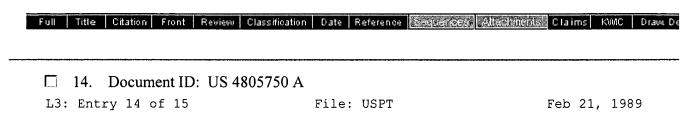
Record List Display Page 2 of 2

US-PAT-NO: 5046174

DOCUMENT-IDENTIFIER: US 5046174 A

TITLE: Method of clutch-to-clutch closed throttle downshift in an automatic

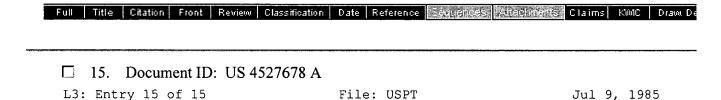
transmission



US-PAT-NO: 4805750

DOCUMENT-IDENTIFIER: US 4805750 A

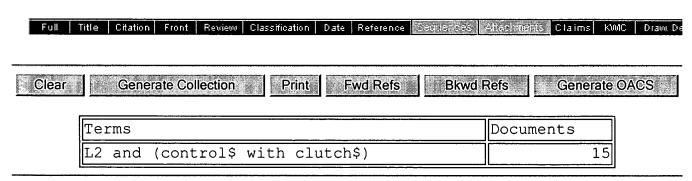
TITLE: Steady state slip detection/correction for a motor vehicle transmission



US-PAT-NO: 4527678

DOCUMENT-IDENTIFIER: US 4527678 A

TITLE: Transmission clutch control system and method



Display Format: - Change Format

Previous Page Next Page Go to Doc#

First Hit Fwd Refs

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Generate Collection

Print

L3: Entry 6 of 15

File: USPT

Aug 9, 2005

US-PAT-NO: 6928357

DOCUMENT-IDENTIFIER: US 6928357 B2

TITLE: Torque-converter slip control system

DATE-ISSUED: August 9, 2005

INVENTOR-INFORMATION:

NAME

Segawa; Satoshi

CITY

STATE ZIP CODE

COUNTRY

Higashimata; Akira

Kanagawa

JP

Kanagawa

JP

ASSIGNEE-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY TY

TYPE CODE

Nissan Motor Co., Ltd.

Yokohama

JΡ

03

APPL-NO: 10/700446 [PALM]
DATE FILED: November 5, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY

APPL-NO

APPL-DATE

JP

2002-383017

December 5, 2002

INT-CL-ISSUED: [07]  $\underline{G06}$   $\underline{F}$   $\underline{7/00}$ 

US-CL-ISSUED: 701/87; 701/90, 477/34 US-CL-CURRENT: 701/87; 477/34, 701/90

FIELD-OF-CLASSIFICATION-SEARCH: 701/84, 701/87, 701/90, 477/34

See application file for complete search history.

PRIOR-ART-DISCLOSED:

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO

PUBN-DATE

COUNTRY

CLASS

09265745

October 1997

JP

2000-145948

May 2000

JΡ

ART-UNIT: 3661

PRIMARY-EXAMINER: Beaulieu; Yonel

ATTY-AGENT-FIRM: Foley & Lardner LLP

#### ABSTRACT:

A slip control system of a lockup torque converter includes a pre-compensator that pre-compensates for a target slip-rotation speed to produce a target slip-rotation speed correction value. A feedback compensator is provided to feedback-control an engagement capacity of a lock-up clutch based on a deviation between the target slip-rotation speed correction value and an actual slip-rotation speed to bring the actual slip-rotation speed closer to the target slip-rotation speed. Also provided is a dead-time processing section that compensates for the target slip-rotation speed correction value to reflect a dead time of dynamic characteristics peculiar to the slip control system in the target slip-rotation speed correction value. The dead-time compensated output is fed to the feedback compensator. The dead time is variable in accordance with a predetermined dead time characteristic.

20 Claims, 22 Drawing figures

Previous Doc Next Doc Go to Doc#

# First Hit Fwd Refs Previous Doc Next Doc Go to Doc# Generate Collection\* Print

L3: Entry 10 of 15

File: USPT

Apr 18, 1995

US-PAT-NO: 5407024

DOCUMENT-IDENTIFIER: US 5407024 A

\*\* See image for Certificate of Correction \*\*

TITLE: On demand vehicle drive system

DATE-ISSUED: April 18, 1995

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY Watson; Will Southfield MΙ Miller; Alan L. Ithaca NY Sundquist; Drew A. Canton MΙ Simpson; Roger T. Ithaca NY Ducklow; Diane K. Farmington ΜI Beckerman; Joseph W. Livonia MΙ Showalter; Dan J. Plymouth MΙ

ASSIGNEE-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY TYPE CODE

Borg-Warner Automotive, Inc. Sterling Heights MI 02

APPL-NO: 07/903696 [PALM]
DATE FILED: June 24, 1992

INT-CL-ISSUED: [06] <u>B60</u> <u>K</u> <u>17/34</u>

US-CL-ISSUED: 180/248; 180/197 US-CL-CURRENT: 180/248; 180/197

FIELD-OF-CLASSIFICATION-SEARCH: 180/248, 180/247, 180/197, 180/233, 364/424.1

See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected	Search ALL	Clear

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4417641	November 1983	Kageyama	180/247
<u>4718303</u>	January 1988	Fogelberg	74/710.5
4840247	June 1989	Kashihara et al.	180/249

4860612	August 1989	Dick et al.	74/665
4866624	September 1989	Nishikawa et al.	364/426.03
4874056	October 1989	Naito	180/233
4937750	June 1990	Gilliam	364/424.1
4989686	February 1991	Miller et al.	180/197
4991678	February 1991	Furuya et al.	180/248 X
5002147	March 1991	Tezuka et al.	180/197
5060747	October 1991	Eto	180/197
<u>5090510</u>	February 1992	Watanabe et al.	180/197
5098352	March 1992	Montanaro et al.	475/86
5119900	June 1992	Watanabe et al.	180/245
5141072	August 1992	Shibahata	180/248 X
5215160	June 1993	Williams et al.	180/248 X

#### FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
903077485	February 1991	EP	
901191742	April 1991	EP	
903092187	April 1991	EP	
3741009A1	June 1988	DE	

#### OTHER PUBLICATIONS

ART-UNIT: 316

PRIMARY-EXAMINER: Camby; Richard M.

ASSISTANT-EXAMINER: Mattix; Carla

ATTY-AGENT-FIRM: Willian Brinks Hofer Gilson & Lione Dziegielewski; Greg

#### ABSTRACT:

An on demand vehicle drive system monitors vehicle performance and operating conditions and controls  $\underline{torque}$  delivery to the vehicle wheels. The system includes a plurality of speed and position sensors, a transfer case having primary and

<sup>&</sup>quot;Nissan Electronic <u>Torque</u> Split 4WD System", pp. 1-20 Nissan Motor Co., Ltd. "Nissan ETS: a New Electronic <u>Torque</u> Split System for Improving Vehicle Dynamics", Reference No. 891074, pp. 303-306 (In Japanese).

<sup>&</sup>quot;Electronic Control  $\underline{\text{Torque}}$  Split 4-Wheel Drive Transfer Case", Fuji Tekko Co., Ltd. (English and Japanese language versions).

SAE Technical Paper No. 850354, A Computer Controlled Transfer for Four-Wheel Drive Vehicles, 1985.

secondary output shafts driving primary and secondary axles and a microcontroller. The sensors include a vehicle speed sensor, a pair of primary and secondary drive shaft speed sensors, and brake and driveline status sensors. The transfer case includes a modulating electromagnetic clutch controlled by the microcontroller which is incrementally engaged to transfer torque from the primary output shaft to the secondary output shaft. When the speed of either the front or the rear drive shafts overruns, i.e., exceeds, the speed of the other drive shaft by a predetermined value related to the vehicle speed, indicating that wheel slip is present, clutch current is incrementally increased to increase clutch engagement and torque transfer to the secondary axle. When wheel slip is reduced below the predetermined value the current to the clutch is incrementally reduced. The method of operating such a system is also described.

79 Claims, 25 Drawing figures

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